AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of ~~using a variable density fluid~~ drilling a borehole in a subterranean formation comprising:

~~introducing~~ providing a ~~fluid having a density that varies as a function of the pressure into the subterranean formation, wherein the fluid~~ variable density drilling fluid that comprises a base fluid and a ~~portion~~ plurality of elastic particles; and

circulating the variable density drilling fluid into the borehole in the subterranean formation as part of a drilling operation;

wherein the variable density drilling fluid has a density that varies as a function of the pressure in the subterranean formation.

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Original) The method of claim 1 further comprising the step of producing a fluid from the subterranean formation.

7. (Currently Amended) The method of claim 6 wherein the fluid comprises a fluid chosen from the group consisting of: oil, gas ~~or a~~ and mixtures thereof.

8. (Currently Amended) The method of claim 1 ~~further comprising the step of drilling a borehole in the subterranean formation,~~ wherein the borehole has a diameter that differs no more than about 25% along the length of the borehole.

9. (Original) The method of claim 8 wherein the borehole has a diameter that differs no more than about 1% to about 5% at any two points along the length of the borehole.

10. (Original) The method of claim 8 wherein the borehole comprises strings of casing the substantial majority of which strings are made from the same piping schedule.

11. (Currently Amended) The method of claim 1 ~~further comprising the step of drilling a borehole in the subterranean formation,~~ wherein the method does not comprise a step of circulating a different fluid from the variable density drilling fluid at any point during the drilling of the bore hole.

12. (Original) The method of claim 1 wherein the portion of elastic particles comprises elastic particles comprising a copolymer of styrene and divinylbenzene; a copolymer of styrene and acrylonitrile; or a terpolymer of styrene, vinylidene chloride and acrylonitrile.

13. (Original) The method of claim 1 wherein the elastic particles have an isothermal compressibility factor in the range of from about $1.5x10^{-3}$ (1/psi) to about $1.5x10^{-9}$ (1/psi).

14. (Currently Amended) The method of claim 1 wherein the base fluid comprises a fluid chosen from the group consisting of: water, a non-aqueous fluid, ~~or a~~ and mixtures thereof.

15. (Original) The method of claim 14 wherein the non-aqueous fluid comprises an organic fluid.

16. (Original) The method of claim 15 wherein the organic fluid is capable of emulsifying a water solution of salts.

17. (Currently Amended) The method of claim 15 wherein the organic fluid comprises a fluid chosen from the group consisting of: mineral oils, synthetic oils, esters, ~~or a~~ and mixtures thereof.

18. (Original) The method of claim 1 wherein the base fluid is present in the variable density fluid in an amount sufficient to form a pumpable fluid.

19. (Original) The method of claim 1 wherein the base fluid is present in the variable density fluid in an amount in the range of from about 20% to about 99.99% by volume.

20. (Original) The method of claim 1 wherein the portion of elastic particles is present in the variable density fluid in an amount in the range of from about 0.01% to about 80% by volume of the variable density fluid.

21. (Original) The method of claim 1 wherein the elastic particles further comprise an internal fluid.

22. (Currently Amended) The method of claim 21 wherein the internal fluid comprises a fluid chosen from the group consisting of: air, nitrogen, carbon dioxide, propane, isobutane, normal butane, normal or branched pentane, ammonia, fluorinated hydrocarbons, hydrochlorofluorocarbons, argon, helium, ~~or a~~ and mixtures thereof.

23. (Cancelled)

24. (Currently Amended) The method of claim 21 further comprising the step of expanding at least a portion of the elastic particles before placing them into the variable density fluid.

25. (Currently Amended) The method of claim 24 wherein the step of expanding at least the portion of the elastic particles comprises expanding the portion of elastic particles up to about 40 times their original volume.

26. (Currently Amended) The method of claim 1 wherein at least a portion of the elastic particles can withstand pressures up to about 21,000 psi without crushing.

27. (Currently Amended) The method of claim 1 wherein at least a portion of the elastic particles can rebound to about their original size and shape when pressure is removed.

28. (Currently Amended) The method of claim 1 wherein at least a portion of the elastic particles can withstand temperatures up to about 500°F without degrading.

29. (Original) The method of claim 1 wherein the elastic particles are substantially impermeable to a fluid present in the subterranean formation.

30. (Currently Amended) The method of claim 29 wherein the surface of at least a portion of the elastic particles is coated with a substantially impermeable material to render the coated elastic particles substantially impermeable to a fluid present in the subterranean formation.

31. (Original) The method of claim 30 wherein the material is hydrophilic or hydrophobic.

32. (Currently Amended) The method of claim 31 wherein the hydrophobic material comprises a material chosen from the group consisting of: silanes, silicone polymers, latexes, ~~or~~ a and mixtures thereof.

33. (Withdrawn- Currently Amended) The method of claim 31 wherein the hydrophilic material comprises a material chosen from the group consisting of: ethylene oxide, propylene oxide, acrylic acid, 2-acrylamido-2-methylpropane sulfonic acid, aminoalkoxysilanes, ~~or a~~ and mixtures thereof.

34. (Original) The method of claim 1 wherein the subterranean formation is located beneath the ocean floor, or on-shore.

35. (Cancelled)

36. (Currently Amended) The method of claim 34 wherein ~~the subterranean formation comprises a borehole, and wherein~~ the density of the variable density fluid increases as the pressure in the ~~borehole~~ subterranean formation increases.

37. (Original) The method of claim 36 wherein the density of the drilling fluid in the borehole is in the range of from about 0.01% to about 300% higher than its density at sea level.

38. (Original) The method of claim 36 wherein the density of the variable density fluid in the borehole is sufficient to prevent fluid influx from a region of the subterranean formation adjacent to the borehole without fracturing a region of the formation.

39. (Original) The method of claim 36 wherein the subterranean formation is located beneath the ocean floor, and wherein the density of the variable density fluid decreases as the variable density fluid travels from the ocean floor to sea level.

40. (Currently Amended) The method of claim 1 wherein the variable density fluid further comprises at least one additive chosen from the group consisting of: a salt, a fluid loss additive, a shale swelling inhibitor, an emulsifier, a viscosifier, a pH control agent, a filtration control agent, ~~or~~ and a fixed-density weighting agent.

41. (Original) The method of claim 1 wherein the variable density fluid is prepared by adding a portion of elastic particles to a fluid above sea level, at sea level, below sea level, or a combination thereof.

42. (Currently Amended) The method of claim ~~41~~ 1 wherein the borehole is in an ocean floor ~~further comprising the step of drilling a borehole into the ocean floor,~~ wherein a riser extends from the borehole to about sea level, and wherein a portion of the elastic particles are added to the variable density drilling fluid below sea level by injecting them into ~~a~~ the riser.

43. (Original) The method of claim 41 wherein the addition of the portion of elastic particles to the fluid reduces the density of the fluid.

44. (Currently Amended) A method of drilling~~, completing and/or stimulating~~ a borehole in a subterranean formation ~~using a variable density fluid~~ comprising ~~the steps of~~:

introducing a variable density drilling fluid having a density that varies as a function of pressure into the subterranean formation, wherein

the drilling fluid comprises a base fluid and a ~~portion~~ plurality of elastic particles;

the elastic particles have an isothermal compressibility factor in the range of from about $1.5x10^{-3}$ (1/psi) to about $1.5x10^{-9}$ (1/psi); and

drilling~~, completing and/or stimulating a~~ the borehole in the subterranean formation using the variable density drilling fluid.

45. (Currently Amended) The method of claim 44 wherein at least one of the elastic particles comprises a copolymer chosen from the group consisting of: ~~of~~ styrene and divinylbenzene; a copolymer of styrene and acrylonitrile; ~~or~~ and a terpolymer of styrene, vinylidene chloride and acrylonitrile.

46. (Currently Amended) The method of claim 44 wherein at least one of the elastic particles ~~have~~ has a specific gravity in the range of from about 0.05 to about 0.99.

47. (Currently Amended) A method comprising:

~~of avoiding~~ reducing ~~the~~ loss of circulation of a ~~well~~ drilling fluid in a subterranean formation, comprising the step of adding to the ~~well~~ drilling fluid a ~~portion~~ plurality of elastic particles, the elastic particles being capable of varying in volume with pressure.

48. (Cancelled)

49. (Cancelled)

50. (Currently Amended) The method of claim 47 further comprising the step of drilling~~, completing and/or stimulating~~ a borehole in the subterranean formation using the ~~variable density~~ drilling fluid.

51. (Currently Amended) The method of claim 47 wherein the ~~portion of~~ elastic particles ~~is~~ are present in the well fluid in an amount in the range of from about 0.01% to about 80% by volume of the well fluid.

52. (Currently Amended) The method of claim 47 wherein at least one of the elastic particles ~~have~~ has a specific gravity in the range of from about 0.05 to about 0.99; and wherein at least one of the elastic particles ~~have~~ has a compressibility factor in the range of from about $1.5x10^{-3}$ (1/psi) to about $1.5x10^{-9}$ (1/psi).

53. (Currently Amended) The method of claim 47 wherein ~~the portion of~~ at least one of the elastic particles comprises a copolymer chosen from the group consisting of: ~~elastic particles comprising~~ a copolymer of styrene and divinylbenzene; a copolymer of styrene and acrylonitrile; ~~or~~ and a terpolymer of styrene, vinylidene chloride and acrylonitrile.

54. (Currently Amended) The method of claim ~~47~~ 50 wherein ~~the well fluid is placed in a borehole within the subterranean formation, and wherein~~ the density of the ~~well~~ drilling fluid is sufficient to prevent fluid influx from a region of the subterranean formation adjacent to the borehole without fracturing a region of the formation.

55. (Currently Amended) The method of claim ~~47~~ 50 further comprising the steps of:

~~placing the well fluid in a borehole in the subterranean formation;~~

permitting a portion of the ~~well~~ drilling fluid to enter openings in a region of the subterranean formation in fluid communication with the borehole; and

permitting the ~~well fluid~~ elastic particles present in the portion of the drilling fluid entering the openings in the region of the subterranean formation to ~~seal~~ at least partially block off the flow of the drilling fluid through the openings ~~off from the borehole~~.

56. (Currently Amended) The method of claim 55 wherein the ~~step of permitting the well fluid to seal the openings off from the borehole comprises permitting the~~ elastic particles present in the portion of the drilling fluid entering the openings in the region of the subterranean formation ~~within the portion of the well fluid to~~ expand upon entering the ~~fractures~~ openings ~~such that the openings are sealed off from the borehole~~.

57. (Currently Amended) The method of claim 55 wherein the ~~portion of~~ elastic particles ~~is~~ are present in the well fluid in an amount in the range of from about 0.01% to about 80% by volume of the well fluid.

58. (Currently Amended) The method of claim 55 wherein at least one of the elastic particles have a specific gravity in the range of from about 0.05 to about 0.99; and wherein at least one of the elastic particles have a compressibility factor in the range of from about $1.5x10^{-3}$ (1/psi) to about $1.5x10^{-9}$ (1/psi).

59. (Currently Amended) The method of claim 55 wherein at least one of the ~~portion of~~ elastic particles comprises ~~elastic particles comprising~~ a copolymer chosen from the group consisting of: a copolymer of styrene and divinylbenzene; a copolymer of styrene and acrylonitrile; ~~or~~ and a terpolymer of styrene, vinylidene chloride and acrylonitrile.

60.-87. (Cancelled)

88. (Currently Amended) The method of claim 1 wherein at least one of the elastic particles ~~have~~ has a specific gravity in the range of from about 0.05 to about 0.99.

89. (Previously Presented) The method of claim 1 wherein the variable density fluid has a density at sea level in the range of from about 4 lb/gallon to about 18 lb/gallon.